

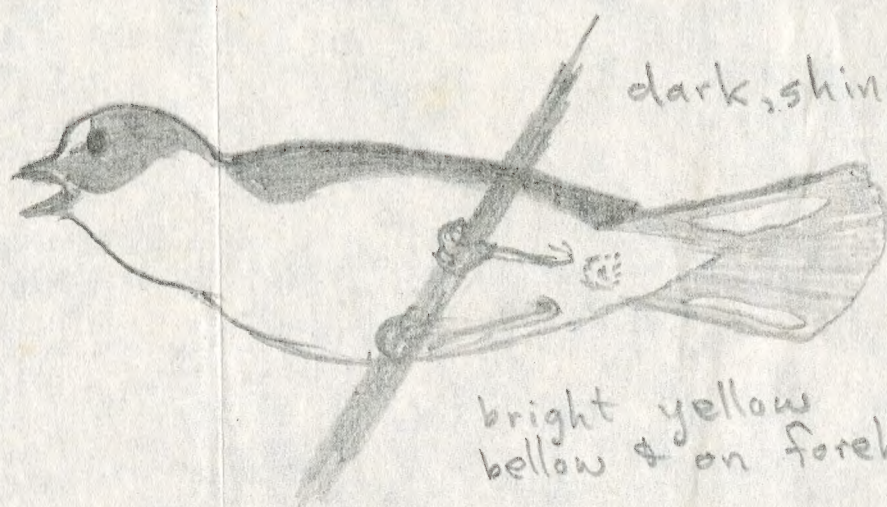
Tancara sp.

Brazil
Territory of Amapá
Serra do Navio

Ca. 800 ft.
Almost Rain Forest

3 Feb., 1963:

Bird was "singing",
a fast, chattering, mimed-like
jumble of notes such as:
tseu tseu tse tse tse tse
whérnht



dark, shiny blue-black above

tail spots white

bright yellow
below & on forehead

etc., rapidly. This notation not
accurate but written from memory.

I recorded a similar prolonged vocalization from a species in Ecuador just a
year ago, & left the tape with Martin.

While calling the bird was clinging to a near vertical branch,
holding its body horizontal, head twisted to be upright. The feathers around
the vent were erected, the vent itself obvious (I could see no 2nd bird). Tail was over
half-fanned, showing white; was wagged horizontal (to one side, pause, to the
other, pause, ...), not rapidly. Every few sec the bird spun around to face
the other direction on its perch; singing was almost continuous for ca. a min.

Javaga, I

①

November 3, 1957,
Barro Colorado

I have now two pairs of these birds

~~XXXX~~ = Pico Gordo = lanirostris

~~XXXX~~ = Bim Bim = luteicapilla (?)

The ♂ Pico Gordo has a lavender ring, left leg

♀ Pico Gordo has a dark blue ring, left leg

♂ Bim Bim has a red ring, left leg

♀ or juv. ♂ Bim Bim has a dark green ring, left leg

These birds have been less active than the Honeycreepers
and I have only noticed the following patterns:

They all Gape quite extensively during hostilities.
Obviously ritualized. In "head forward threat posture",
or ordinary sitting posture, or posture comme ça:



Apparently quite silent
Very little CR in this drawing

In the case of the ♂ Lav L., at least, this gaping
may be accompanied by very very pronounced CR,
involving blue part of crown and upper back of nape
as well as yellow forehead patch

This ♂ Lav L. also does CR without bill opening
of any sort quite frequently when any of the other birds
come near. Feathers may be raised & lowered repeatedly

Sauaga, Nov. 3, 1957, II.

@

I think that they all have a weak "chip" or "Chip Chip" as CN.

Like the Honey Creepers they have very little or nothing in the way of ritualized wing - or tail - flicks. The few tail flicks I have seen have been part of body movements.

The Lar L ♂, however - who is by far the shyest of the four - sometimes makes many many repeated but very slight wing - flicks. There are so numerous that I suppose they might be ritualized - but I doubt it.

Sauaga, I

November 6, 1957
Barro Colorado

I have now put the Pico Girdles and BunBuns in the outside aviary, where their movements immediately attract a wild ♂ Rufous vented Euphonia = fulvicornis - ~~fulvicornis~~

This bird either sits on a nearby twig or repeatedly tries to get in at or join the others inside the cage. When just sitting and watching them it does extreme Wing-flicks (Wf) very rapidly and almost constantly. The wings are raised quite high above the back with each flick, revealing the white-linings with a conspicuous flash. The posture with which this Wf was combined was a rather low forward posture with tail slightly raised (and perhaps just a little bit raised) - but not very ritualized looking. The Wf's seemed to be accompanied by some Jf's; but there were no in -

Tanager, Nov. 6, 1957, II

(3)

conspicuous in comparison with the Wf's that they were hardly noticeable. (All this was probably also accompanied by CN's, but I couldn't distinguish the notes of this part - could be in the general hubbub.)



Moderately extreme.

White tail
patch quite
visible.

Looks very
plump, perhaps
even more so than I have
drawn it

It is probably significant that this ♂ does not sing at the new birds in what is presumably his "home range" (at least). See also today's notes on Cyanerpes.

This bird does this steadily for at least a half hour, and still returns to do some more from time to time.

Tanager, I.

November 13, 1957,
Barro Colorado

During a dispute over food, the ♀ Pico Gordo did extreme G with very pronounced CR.

November 29, 1957.
Barro Colorado

~~XXXXXX~~ = Pico Zorzo = lanirostris

~~XXXXXX~~ = Bui Bui = luteicapilla

~~XXXXXX~~ = Fulvous-vented = fulvica

Quite a number of Fulvous-vented birds can be seen around the clearing from time to time. Always solitary (at least the ones I have seen so far) and moderately low in the vegetation, (sometimes almost down to ground).

I have one pair of Bui Buis (♂ banded red left, ♀ dark green left) and one pair of Pico Zorcos (♂ lavender left, ♀ dark blue left) in captivity here, in the large aviary.

They all have the usual tanager WF's and TF's.

In addition, I have seen some much more exaggerated WF's by ♂ Fulvous-vented which were "attracted" to the captive birds. Wings flicked out, probably up a little, and then down. Done repeatedly, very rapidly, for 5, 10, or 15 minutes at a time. White wing patch flashes conspicuously with each movement. I am not sure if this was a definite distinctive peculiar display, or just an extreme case of "inhibited int. mov. of flight" like ordinary WF of this and other species. The birds I saw do this exaggerated WF (EWF) were certainly hopping back & forth very excitedly. And I have seen other cases of wild Fulvous-vented ♂'s visiting the captive birds without a trace of EWF. The few EWF's I have seen were so conspicuous that I didn't not.

Jauagra, Nov. 29, 1957, II.

(5)

ice if they were accompanied by TF's and CN's or not I presume they were accompanied by at least the TF's, but not particularly exaggerated ones.

When I first got the captive birds, they were first put in a small cage, and both the Pico Geckos got involved in fights (with Honeycreepers). Both died G. The ♂ usually show his head back during the G; and sometimes raised his yellow-crown feathers.

(This rather reminded me of some of the carduelines — such as the Beaks — that I have watched time.)



Evening Gros-
s from time to

The CN's of the two captive species are the usual-tanager type. Might be transcribed as "whit". Usually uttered as single notes, occasional double or triple ones. (None of these birds gets very excited nowadays, so it is always possible that they may be capable of uttering longer series under greater stress. Still, there is certainly a real difference between the relatively few CN's of this species — and such groups as Thraupis and Rhamphocelus — and the comparatively numerous CN's of the Jauagra birds.)

These CN's are often synchronized with TF's and WF's. I.E. Most CN's uttered by non-flying birds are accompanied by Flubs, although some (many?) Flubs occur without CN's. (This is also true, I think, of most other species of other genera — with the probable exception of Jauagra.)

The double and triple CN's are particularly apt to be given by flying birds.

December 1, 1957,
Barro Colorado

The ♂ Pico Gordo is the only bird in the aviary now who shows signs of overt aggression. He may suddenly attack another Euphonia sitting nearby. I have also seen him "yawn" in circumstances which I thought might be hostile. I.E., this may have been a G (but without any feather-erection or ritualized movements).

The ♀ Pico Gordo, sitting by herself, suddenly uttered a heterogeneous medley of quite distinctive notes. A few loud, nasal "Wah" notes (uttered as single notes or in pairs), irregularly alternated with whistle-like "Wheoo"s or "Wheoo wheoo"s or even "Wheoo wheoo wheoo"s. She may have been provoked by the appearance of a deer nearby. Of course, it was impossible to tell what the causal difference(s) between the 2 types of notes might be, but they were both obviously high intensity. It would be tempting to correlate them with the HAC of other species and the ALCN of the Gold-finch.

The ♂ Pico Gordo was sitting more or less peacefully on his perch when a ♀ red-eater landed very near him and sat there for a while. The Pico Gordo began TF's (not very extreme) and Bill-wiping (one wipe to each side) heading away from the red-eater for each BW. He had not been eating recently. He didn't seem awfully excited, although he did fly away eventually, but this looked as if it may have been more than coincidence, and it was reminiscent of the goldfinches.

Jaua, I.

(7)

December 2, 1957
Barro Colorado

Presumably some incident just occurred, which I largely missed, but I did see the ♀ Bui Bui give a very brief clear warble, from a completely unritualized posture, while she stood near the Pico Gordo. God alone knows what it meant?

The ♀ Pico Gordo responded by an extreme & prolonged G, without any signs of CR or other ritualization. She has since done this several more times when the ♀ Bui Bui has come near.

The Pico Gordo do seem to be the most aggressive species in the cage, but it may be just that they are the largest birds here.

Jaua, I

December 17, 1957,
Barro Colorado

When I put the hawk in the aviary today, (see the notes on Cyanerpes), the 2 ♀ Euphonia reacted violently, lots of flying about, lots of flubbing, and lots of CN's and Al CN's. The 2 ♂'s reacted much less violently. A little flying about, some flubbing, and few or no CN's or Al CN's.

The ♀ Pico Gordo was perhaps the most disturbed of all, and I think that I understand her CN's and related patterns better now. Her ordinary CN is a single "Wheoo" Note (not particularly nasal or hoarse or harsh), or, more frequently a double "Wheoo-whoa". At higher intensities, the notes become louder, and are more often repeated; but there are apparently

Jauagra, Dec. 7, 1957, II.

(8)

never more than 2 notes in a single "series" of CN's, (i.e. there is always a definite if slight pause between the second and third notes if three notes are uttered). The Al CN seems to be a single, longer, "clearer", shriller, perhaps more whistle-like note. Relatively rarer.

The CN's of the ♀ Bui Bui are much the same as those of the ♀ Pico Gordo; but her longest "series" do really include 3 notes, (i.e. there is no pause between the second and third notes if 3 notes are uttered in succession). She also utters doublet CN's quite frequently, but they are presumably lower intensity on the average than those of the ♀ Pico Gordo. The ♀ Bui Bui also seems to utter "multiple" CN's more frequently than single notes.

These multiple CN's, the doublets and triplets, are perhaps comparable to the CN Tr of the Plain Tanager, in the sense that they have become partially "emancipated", in form, from the single CN. (This may well be true of the multiple CN's of a lot of other species as well.)

I think that the ♀ Bui Bui also has an Al CN like the ♀ Pico Gordo; but I can't be absolutely sure of that yet.

I also think that the ♂'s of both species have Al CN's; but again I can't be sure.

In both the capture pairs the ♂ is certainly dominant over the ♀; at least insofar as he can snatch food from her bill without fear of retaliation.

Once, when another bird landed too close beside the ♂ Pico Gordo, he did G with very pronounced tongue-raising.

Jauagra, Dec. 7, 1957, III

(9)

||| ||| Lili thus 

||| ||| All the G's of both sexes of both species, incidentally, reveal fairly bright pink inside the mouth

Jauagra, I

December 8, 1957

Barro Colorado

When I put all the seed-eaters into the aviary (see today's notes on *Spizophrila*), the ♀ Bui Bui was the only bird who seemed much upset. She flew about the cage excitedly. She gave a few shrill single Cl. CN's (these are like those of the ♀ Pico Gordo); a lot of the double & triple "Wheoo wheoo" notes which I have been calling "multiple CN's"; and, especially as she calmed down, a lot of less penetrating, less flutistic (?) or trumpet like (?), "Ich" Notes (these really weren't very loud at all), which came as single notes or in twos or threes, but which didn't seem to be organized into "nal" series. These "Ich" Notes are obviously the "real" CN's, the ♀ tended to give them as she flew up. But what are the "multiple CN's" (MCN)? They are so very distinct, morphologically, that they cannot be merely variants of the ordinary CN. Their occurrence today, and yesterday during the hawk incident, shows that they must be hostile — and might, perhaps, indicate that they are produced by a more or less relatively strong escape drive.

Jauagra, I

December 9, 1957,
Margarita

Tauanga, Dec. 7, 1957, I

(10)

~~Green~~ = White-vented = minuta

I saw a small flock (8 to 10 birds, approximately) in the trees of some mixed grassland & scrubland, outside town. These birds were very active - rather reminiscent of the Plain Tanagers - a resemblance increased by the fact that the flock "twittered" as it flew. This effect due to the fact that at least several birds in the group uttered series of "real" CN's, apparently just like those of the ♀ Bui Bui described yesterday.

Tauanga, I

December 10, 1957,

Barro Colorado

The ♂ Bui Bui and both Pico Goshawks seem to have "real" CN, one or two notes uttered just before or during flight; but they give these notes (and all the other CN-like notes) much less frequently than the ♀ Bui Bui. Why? It is possible that the ♀ Bui Bui is more "excited" than the others when I watch the aviary, and this (plus the behavior of both ♂'s when the hawk and the seed-eater were introduced into the cage) might suggest that all these notes contain an element of hostility.

Still - the way in which the ♀ Bui Bui tends to give MCN's after she has flown across the cage from the other birds, might suggest that this is an "isolation" pattern, the result of frustrated gregariousness.

⚡ All the Fulvous-vented Euphoniae I have seen recently have been high in the tree-tops.

Javaya, I

(11)

December 22, 1957,
Barro Colorado

A hawk flew & perched near the aviary this morning; and immediately all the birds took cover & froze. I couldn't see the Euphonia but one bird of one species, at least, uttered lots of MCN's — one MCN including 3 notes. This would indicate that the MCN is high intensity, and also, presumably, that it may function as an alarm pattern. As far as I know (or noticed, that is), none of the birds uttered the shrill notes I have been calling wj alcn's.

Javaya, I

December 26, 1957
Barro Colorado.

Again there was a burst of MCN's by the aviary birds when a hawk flew overhead.

Then, when I put in a ♀ Rufous-vented, the ♀ Blue Bird gave a few more MCN's. She was the only one of the old inhabitants to do so. (She always gives more than any of the others.) Again looked like a form of alarm call. But she was fairly isolated when she gave these notes, and she sometimes gives a few MCN's when she goes down to feed alone, so it is still hardly possible that some of them are due to frustrated gregariousness — but very unlikely.

I have put two wild-caught Rufous-vented Euphonia in the cage. 1 ♀, banded silver right; and 1 ♂, banded

Jauaqa, Dec 24, 1957, II

(12)

ed selves, who seems to have had a stroke and seems to be
dying. (Yes He just has!).

The ♀ Rufous-vented gave a few hoarse notes when
I first introduced the ♂ into the small trapping cage. There
may have been HAC. After being put in the aviary, all she
did was fly about very nervously (obviously very frightened),
quite silent, with the usual ordinary TF's and WF's.

Jauaqa, I

December 28, 1957,
Barro Colorado

The pair of *Orio Goides* finally started to become active
today. There was a whole series of reactions between the ♂ and ♀
for about 3 minutes. Essentially consisted of the ♀ flying to the ♂,
repeatedly, displaying to him and pecking toward his face and bill,
while he displayed back and (usually) retreated. There were cer-
tainly strong hostile components in the performance, and the whole
thing may have been purely hostile - although there may also have
been a sexual component, particularly on the part of the ♀.

The ♀ would fly to the ♂ and face him in this posture.

Sort of a "General
well level."



"Fluff" (Jfluff), particularly
spread on breast & belly
and upper back. Very

little CR. And wings not
very fluffed, usually covered by the
wings.

No particular wing movements with this, but usually more or
less G.

Javaga, Dec 28, 1954, II

(13)

Quite silent throughout the performance.

The ♂ often responded by facing the ♀ in the same low posture, with the same Gfluff, with extreme G, equally little CR, and equal silence. More often, however, he tended to withdraw a little, pulling his head up & back a little. In this posture, I think that the general fluffing was less, in the sense that the feathers were raised less, while the G was apt to be less sustained. Instead, the ♂ several times did a very slow but extreme OCB (SOCB), or did pronounced CR (usually the CR without G I think). This extreme CR was rather different from the drawing I made earlier. Involved glancing blue feathers of crown as well as the yellow ones of the forehead. The blue-black feathers rather more conspicuous than the yellow ones in fact. Like this



This incident the Gfluff is a highly relatively aggressive with the low posture (F) that CR might be less aggressive.

would suggest that intensity pattern. Prob- or sexual (at least the ♀ assumed. The extreme

Now, of course, I have seen similar behavior again. Much the same, except that the ♂ was in F & Gfluff, with extreme G and CR, before withdrawing his head a little (maintaining the G & CR after the slight withdrawal).

The forward pecks that the ♀ makes from her Gfluff in F are either straight forward or slightly upward & forward. No trace of any tendency to stand up and peck down at him.

Tanagra, I

(14)

December 30, 1957
Barro Colorado

I have got another ♂ Rufous-vented, banded orange
left, which I have put in the aviary.

When it was first put in, the other birds showed the usual
very mild excitement. Nothing much, except that the ♀ Pico
Gordo went into the G fluff once, briefly, with picking int.
mouv. when it got close to the new ♂ Rufous-vented.

The ♀ Rufous-vented just uttered a hoarse, soft, "Ha ha
ha" as she retreated before an attack by a Green Honeycreeper. Sounded
exactly like the HAC Notes of other species.

This ♀ Rufous-vented has been remarkably active so far,
but also remarkably silent on the whole.

Tanagra, I

December 31, 1957
Barro Colorado

The captive ♂ Rufous-vented did a pronounced and def-
initely ritualized G this morning when another bird came too
close to him. Pulled head up & back at the same time. (This
"withdrawal" movement seems to be characteristic of the G pat-
terns of all the Euphoniae - at least when it occurs alone with-
out other ritualized elements)

This captive ♂ also gives lots of ordinary CN's while flying
about or making int. movs. of flight.

I might add that I have captured quite a number of the

Tauanga, Dec. 31, 1957, II

(15)

Rufous-necked Euphomas in the nets now, and, as far as I can recall, they have all been silent when handled.

The captive ♂ also seems to utter a few brief notes with a "rattle undertone" when going down to feed. I don't know what these can be.

Tauanga, I

January 2, 1957,
Barro Colorado

Have now heard the captive ♂ Fulvous-necked utter quite a lot of the "Rattle CN's" (RCN). Usually single notes, sometimes doublets. Sounds quite a lot like a brief low intensity R by the Green Honeycreepers. It might be the homologue of the MCN's of the other Euphomas.

Tauanga, II

January 5, 1958
Barro Colorado

The captive ♀ Rufous-necked has now begun to utter RCN's like those of the ♂.

All the captive Euphomas roosted together, apparently a few inches apart from one another, in a Pagoda Bush last night (a different bush from the one the Blue Honeycreepers chose).

Sometime last night, or early this morning, however, the ♀ Bui Bui & ♀ Pico Jaco disappeared! Presumably in the general hon-ha-ha, somewhere killed by the Green Honeycreepers.

January 7, 1958,
Barro Colorado

Have been watching the remaining Euphoras very carefully the last few days; but their behavior does not seem to have been much affected by recent changes.

I have been paying particular attention to Flicking movements, and I think that my previous descriptions of these patterns are somewhat misleading.

They all seem to have moderately prominent & frequent (if extremely variable) WF's. They have relatively very little in the way of TF's, however. One might almost doubt that the TF's were ritualized at all. Just occasional movements of tail (usually relatively very rare) as part of unritualized pivoting body & head movements. Definitely essentially a sideways movement, a jerk of the tail to one side (occasionally a jerk to one side and a jerk back again). Very little vertical component, sometimes completely absent. When present, I think that it is always V-D. The TF's of the Pico Gordo are more obvious than those of the other 2 species, but only, I think, because it has a relatively longer tail.

The ♂ Pico Gordo and Ben Ben have both uttered mCN's from time to time during the last few days. Both doublets!

The ♂ Rufous-necked has been uttering "ordinary" CN's from time to time as he flies about the cage.

Tanaga, Jan 8, 1958, I.

17

The captive ♂ Rufous-vented got involved in a little brief dispute with the ♂ Bin Bin, and did definite G in a forward posture (head low, pointed straight front), without any other signs of ritualization.

Tanaga, I.

January 14, 1958
Barro Colorado

I have got a new ♀ Bin Bin from the market via Mrs. Manning. Banded black right. Was in good condition when I got it, but somehow she received a terrific wound on the forehead in transit. Still, she seems quite chipper now. Have put her in the aviary.

She has uttered quite a lot of MCN's, both in transit and in the aviary. All doublets. (The ♂ also utters MCN's from time to time, and there are also all doublets. The doublet MCN would appear to be typical of the species - at this time - and I can't imagine why the previous ♀ did so many triplets.)

The new ♀ apparently did not utter any other notes, in transit or in the aviary. This would seem to indicate that as time or fairly strong anxiety (and she certainly had a fairly strong escape drive throughout) "inhibits" the ordinary CN's. But what does it indicate about the more whistle-like notes which I have been calling "dCN's"? ???

There wasn't much in the way of a reaction when I put the new ♀ in the aviary. But, later on, the ♂ Pico Gordo did rush at her a couple of times, in brief supplanting attacks. Her attacks

Jawaga, Jan 14, 1958, II.

(18)

were quite unritualized — except that he did, definitely, fluff the yellow breast & belly feathers quite prominently (if briefly) during the forward rush (these supplanting attacks were not flying, just quick rushes sideways down a branch).

The ♂ Pico Gordo is giving few or no MCN's now. The MCN's of this species would certainly appear to be generally rarer than those of the Bun Bun.

Jawaga, I.

January 15, 1958
Barro Colorado

I have now heard the new ♀ Bun Bun utter MCN's of 3 notes.

The usual TF's of the ♂ Pico Gordo don't seem to have any vertical component at all!

January 20, 1958
Barro Colorado

I am afraid that my captive ♀ Rufous-vented has died. I first noted her absence yesterday.

The ♀ Bun Bun seems to be settling down well. She utters quite a lot of MCN's from time to time, and all the ones I have heard recently have been doublets. She seems to be like my previous ♀, in that she seems to utter more MCN's than the ♂.

Javagra, I

(19)

January 22, 1958
Barro Colorado

A wild ♂ Rufous-nvented came to visit the captive birds this morning. Set on low branch of tree and preened. Uttered a whole series of RCN's at first, some of them quite long, almost like "real" R's. Noticed that each time a RCN was uttered, the tail was depressed, in what seemed to be a definite but slow TF. Purely vertical D-V, no lateral component. Otherwise no ritualized postures or movements.

Then the visiting ♂ began to alternate RCN's with what seemed to be a whistling CN's. Rather whistle-like but soft. Whistles gradually became more frequent, while the RCN's declined & stopped. Then the ♂ flew away.

Javagra, I

January 23, 1958
Barro Colorado

There have been more visits by wild ♂ Rufous-nvented today. All of them have uttered RCN's. Some of these notes have been quite prolonged — "real" R's.

Javagra, I

February 4, 1958
Barro Colorado

I think that the homologization of the RCN's of the Rufous-nvented with the MCN's of the other 2 species is quite safe, as I have

Jauaga, Feb. 4, 1958, II

(90)

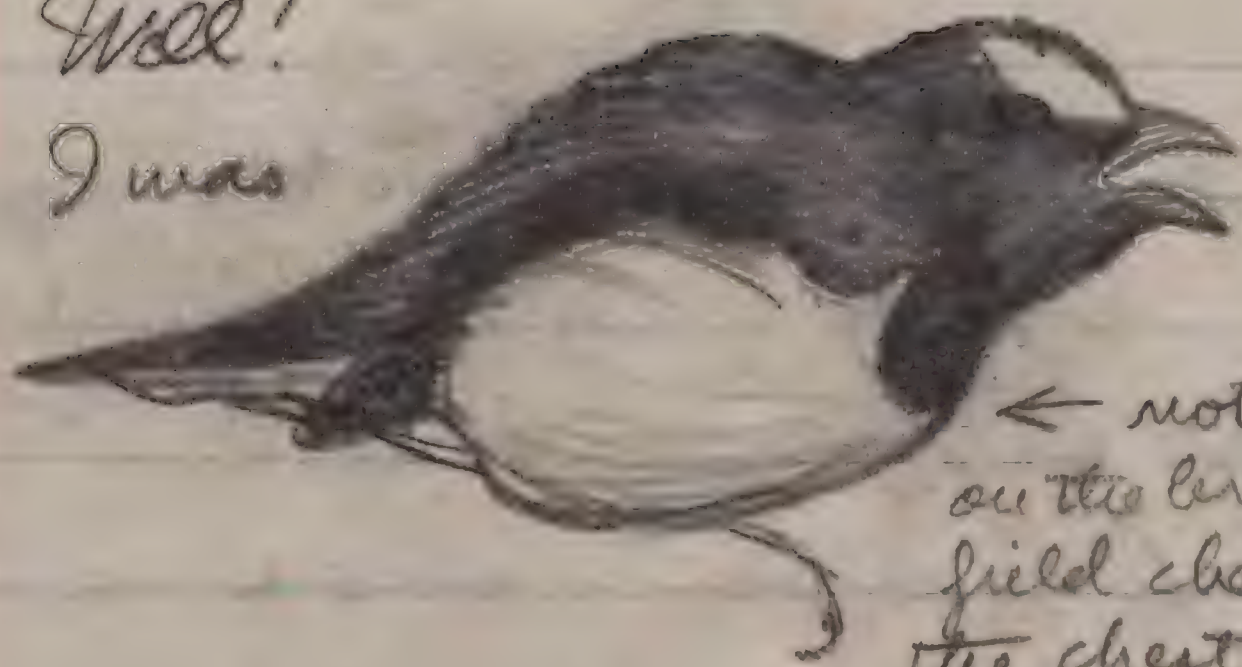
now heard (but not seen) wild birds giving RCN's in doublets and triplets just like the MCN's. What the hell does this indicate about the possible homologues between the RCN's of this *Euphonia* and the R's of typical tanagers ???

Jauaga, I

February 6, 1958
Barro Colorado

Well!

I was



panning by the aviary in a hurry

← note how far the blue goes down on the breast. This is one of the best field characters of the species. The blue on the chest of the *Bun Bun* doesn't go down nearly as far.

when I suddenly noticed that the ♂ Rufous-vented was singing !! In posture like the one drawn above (sometimes sitting up a little more obliquely) with crown just slightly fluffed, upper back and lower breast + belly feathers quite fluffed. The song itself was most reminiscent of the WS of the Palm Tanager (and I shall call it WS also). Introduced, usually, by one RCN, then a series of more or less uniform notes like the "Twitter" Notes in the WS of the Palms. Sometimes one or two notes interjected (in middle of "Twitter" part) which had a "rattle undertone." These sounded like ordinary RCN's. But they were, of course, also somewhat reminiscent of the Fall part of the WS of the Palms. Are these resemblances between the whole WS of this species and the Palm really significant ??? They certainly look so.

These WS's of the Rufous-vented don't seem to lead to any

Jauwaga, Feb. 4, 1958, II

(21)

thing in particular. The bird just sat and sang by itself. It didn't evince any obvious reaction in any of the other birds.

Once or twice, when some other birds landed near the singing Rufous-vented (apparently in the normal course of their flying back & forth across the cage) it suddenly and briefly fluffed out its breast and belly feathers more than they had been during the WS. (These incidents occurred just after WS phrases). Presumably a trace of Gfluff.

Now the same ♂ is in posture course 3:

Again no



giving WS's in

Low intensity?

results at all

& closes (or, at least, gets

Bill opens

almost closed) with the notes of the WS

Now the ♂ just sang in the posture drawn above, with flicking before & after WS. The whole burst may have been provoked by a chirp with a honey creeper. Anyhow, it gave a series of WS's, in which each phrase seemed to be degenerated. Perhaps course 3: — — — — "Wuh Reee Reee Reee" ??

Jauwaga, I.

February 8, 1958

Barro Colorado

The capture ♂ Rufous-vented is singing this afternoon again. More or less just like before. But it is now obvious that the fluffing of the breast & belly feathers as shown on p. 20 is very unusual. The ♂ today has been singing in a more or less unritualized posture. Like the one drawn above on this page, with slightly ruffled head, but no or

Jauaga, Feb 8, 1958, II

(22)

very little "hump" on the back. Often doing it in the paces of pacing alertly around the cage, on perching trips or even clinging to side of aviary associated with a little flicking. He usually turns the head alertly, irregularly and not to any very great extent during most WS's.

Jauaga, I

February 16, 1958

Barro Colorado

I first noticed this morning that the ♂ Bum Bum has begun to sing. A WS essentially similar to the WS of the Rufous-vented. Very soft and impossible to describe. The first WS's were usually preceded by 1, 2, or 3 MCN notes, and sometimes terminated by a single MCN, but these have gradually dropped out, leaving a pure warble alone. (The Bum Bum hasn't shown any trace of rattle-like notes at any time in association with its WS. I.E. the place of the RCN's of the Rufous-vented is taken by the MCN's. Further proof that the RCN's and MCN's are homologous.) The ♂ Bum Bum has always given this WS when he is sitting alone. Without ritualized postures or movements. He just stretches his head & neck up and forward a little. The head feathers may be slightly fluffed, but there is certainly no "hump" on the back.

I can also confirm now that the ♂ Rufous-vented also usually gives his WS from the same unritualized or extremely little ritualized posture. I haven't seen him give the WS with definite fluffing (aside from the head-feathers) since the first day I watched him sing.

I have managed to catch another ♀ Rufous-vented. Banded orange left.

Sanaga, Feb. 16, 1958, II

23

This new ♀ gave almost constant RCN's for about an hour after she was let loose in the aviary. In ones, twos, and threes — and one case of a series of four — but all the series were very close together. Didn't seem to provoke much except obviously "cwin-ous" approaches by all the other Euphoniae in the cage, (particularly both the Blue Blues, who seemed much more interested than the ♂ Rufous-vented!).

The similarities between the RCN of the Puffins - nentel and the MCN's of the other species are so obvious now that I shall call them all MCN.

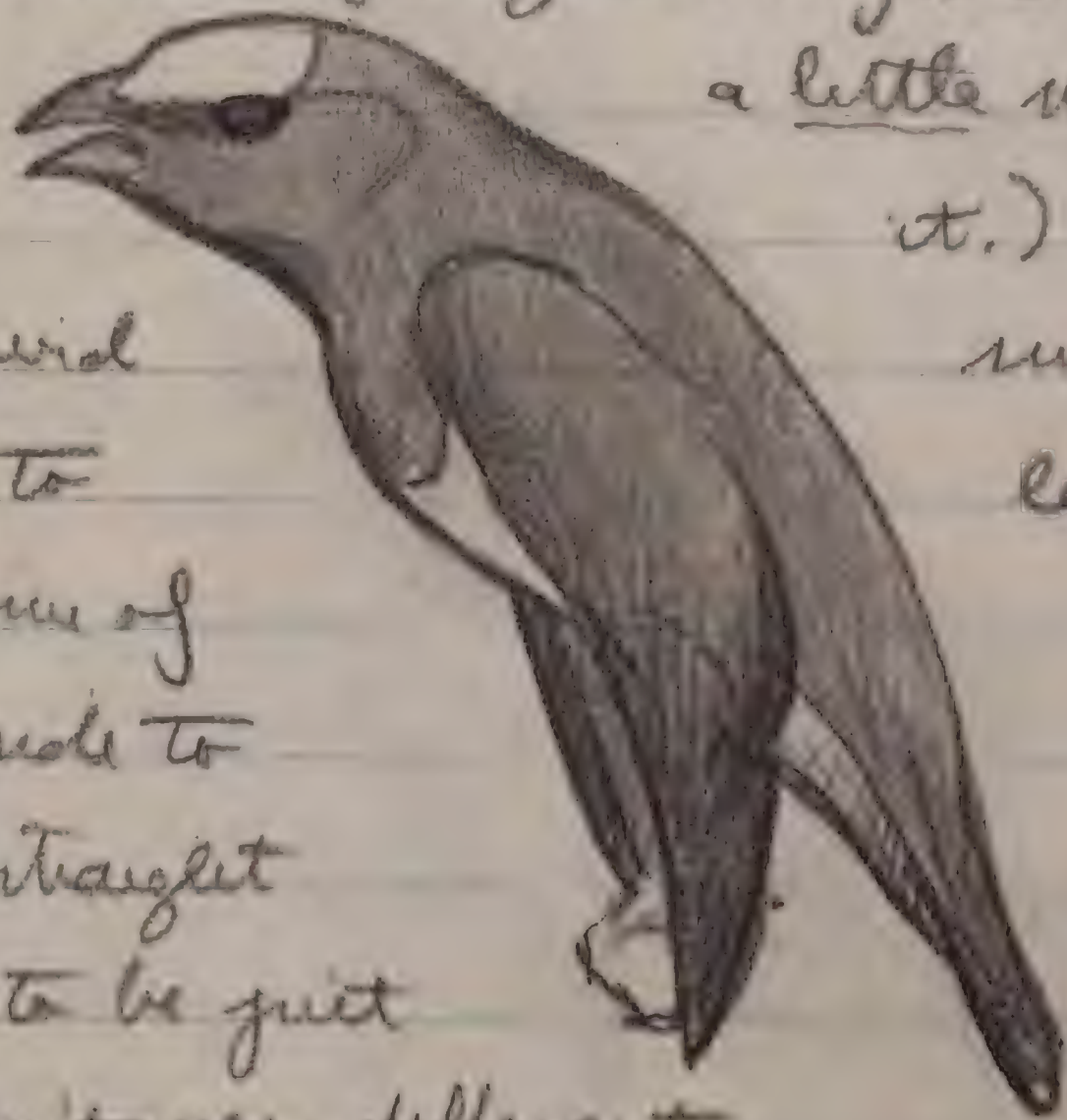
I am afraid that I will have to make another change now. This afternoon some bird in the distance gave an alarm call, and a Rufous-naped in the tree by the cage (which I couldn't see, so I don't know if it was ♂ or ♀) immediately began a long & loud vocal performance. First a whole, very long, series of RCN's, going so fast at one time that it was almost a "roll", comme ça: rrrrrrrrrr. Then, apparently the same bird, gave a whole series of double notes which sounded very much like the typical MCN's of the other Euphomas. "Whewooo whewooo". As far as I could tell, these differed from the typical doublets of the Bee-eater only in being slower, with the successive doublets less sharply separated. More ————— rather than —————

What the difference in motivation between these 2 calls of the Rufous-nosed is I couldn't tell.

From now on, I shall continue to call the RCN's of the Ref. requested RCN, and I will call the MCN's "WhCN's."

February 17, 1958
Barro Colorado

The ♂ Rufous vented in the aviary largely ignored the new ♀ most of the morning. Did a little ordinary WS from time to time while perched by himself. Then I came back from a short trip away from the cage to find an extraordinary encounter in process. The ♂ was singing in a posture common. Standing in a very erect curved posture. (The angle of the body varied somewhat - it was sometimes



than I have drawn looking. And the bird side (i.e. swinging to side to side, in a form of just swaying from side to side just looking straight song itself seemed to be just or, at least, it wasn't very different.

a little nearer the horizontal (x.) Very sleek and then swayed from side to side (look diagonally from front - not side with the head forward). The ordinary WS. When I first

looked, the ♀ was sitting on a twig facing the performing ♂, crouched down in what seemed to be an unritualized pre-flight posture. She then flew at the ♂, who retreated to a nearby twig a little further away. I think that this ♀ must have been hostile and aggressive, at least to a very large extent. In any case, the ♂ immediately began to sing again, in the same way, in the same extreme posture, etc. And the ♀ rushed him again, and he had to retreat again. This whole procedure was repeated a couple of times more, and then the 2 birds finally separated.

Jauayra, Feb. 17, 1958, II

(25)

Watching the ♂ Rufous-vented this afternoon while he picked up and manipulated a long piece of straw. He nibbled it in his bill. Presumably he was. Finally just dropped it, and sat.

While sitting watching the aviary, I heard a burst of loud clear whistle-like notes from the top of a tree about 50 ft. away. Apparently single, although frequently repeated. These were immediately answered by the capture ♀ Rufous-vented with RCN's. I finally tracked down the bird giving the whistle in the tree-tops and he turned out to be a ♂ Rufous-vented (The mate of the capture ♀?). For a while he and the ♀ duetted for a while; 1 whistle by ♂, 1 RCN by ♀, 1 whistle by ♂, 1 RCN by ♀, etc. etc. His whistle notes could be transcribed as "Wheeee-oooo" too, but they were certainly clearer and more ringing than any notes I have ever heard from a Euphonia before (I think I shall call them "WWN"s). The strength of his WWN's gradually declined, the 2 birds duetted less rapidly, and the capture ♀ eventually went down to feed and shut up. The ♂ nevertheless came down to "visit" in a nearer tree, but I lost him in a rain storm. In any case, the 2 birds were silent from then on.

A little later, there was a very noisy fight between some hummingbirds in the distance, which started a mild alarm in the aviary. Everything froze for a few seconds. The ♀ Rufous-vented gave a perfectly good doublet WhCN, "Wheeee-whoa", just as she went into the freeze. This was presumably an Alarm Call, like many of the WhCN's of the other Euphonias, and sounded just like the WhCN's of the other species (although I am pretty sure that it was no more than a variant of the slightly more

Jauagra, Feb. 17, 1958, III

(96)

distinctive WCN's I heard yesterday).

I wonder how many different types of CN-like notes this species has? (In case I haven't mentioned it before, it does seem to have an "ordinary" CN like the other Euphonia's.) The Euphonia's as a group would certainly seem to have specialized WCN's.

The captive ♂ Pico Gordo still fluffs out his belly feathers, quite extremely but very briefly, whenever he makes a brief aggressive jab or advance toward another bird which has come too close to him. (This is the only overt hostility he shows these days.)

The captive ♂ Bui Bui hasn't shown any sign of singing at all today. Why?

Jauagra, I

February 21, 1958
Barro Colorado

Wouldn't you know it? My fine ♂ Rufous-vented seems to have disappeared some time in the last 3 days when I was away. But I caught another this afternoon, banded white left so far hasn't done anything at all.

Jauagra, I

February 22, 1958
Barro Colorado

A wild pair came to visit the captive Rufous-vented this morning. General behavior much as usual, much peering & flitting

Jauaga, Feb. 22, 1958, I

P7

with lots & lots of flicking. The ♂ came down to the roof of the aviary itself, while the ♀ stayed in the branches moderately far above it. I noticed that the ♀ gave lots of RCN's (including quadruplets), while the ♂ — at least while he was actually on the aviary itself — gave ordinary CN's instead. Does this suggest that the RCN's contain a relatively strong escape component? I think so.

It is certainly my general impression that ♀'s are more apt to give RCN's than are ♂'s, in most circumstances.

Jauaga, I

February 24, 1958
Barro Colorado

Have been watching more "visits" by wild Rufous-nosed birds and can confirm some of the notes above. When it is a pair that is visiting, the ♀ stays in the trees and utters RCN's while the ♂ comes down to the aviary roof and utters ordinary CN's. A wild ♂ visiting acts the same way even when he arrives alone, without having any ♀ with him. The captive ♀ in the aviary also responds to the visit by RCN's, while the captive ♂ is usually, I think, silent.

Jauaga, I

February 25, 1958
Barro Colorado

Nothing very new today, except that the ♀ tonight started to give some very peculiar MCN's (apparently as a response to me, as by a nearby flycatcher!). The first note was an RCN, but this was followed by 2 whistle-like notes! Often repeated.

Javaga, I

February 29, 1958
Barro Colorado

The ♂ Bum Bum in the aviary began WS's again this morning. Just as before, when he was sitting by himself, and without inducing any apparent response.

Javaga, I

March 30, 1958
Barro Colorado

The birds have not been very active this month, until the last few days. The last of my Rufous-nutted died off, but I acquired 2 new ♀ Pico Gerdos (one unbanded, and one banded blue left).

The ♂ Pico Gordo has been slightly aggressive for some time, tending to chase and supplant the Bum Bums, and he has become much more so since the two new ♀'s were introduced. The ♀ Pico Gerdos have also been quite aggressive. Most of the hostility of both the ♂ and the ♀ Pico Gerdos has been intra-specific, but they still tend to show hostility toward the Bum Bums from time to time. They seem to regard the Bum Bums as inferior but not particularly irritating members of their own species.

The commonest form of hostile display of these Pico Gerdos is G-fluff, more or less the same as the reactions described on December 28th. There are obviously all sorts of variations in the G-fluff pattern, and all sorts of variations in the other patterns with which it may be associated — and I have found the whole thing rather difficult to follow — but the following facts seem probable.

Javaya, Mar 30, 1958, II.

(29)

All the Gfluff patterns seem to be more or less strongly aggressive. Quite obviously, usually, associated with overt attack, aggressive charges and supplanting attacks. Usually preceding such overt attack — in fact, I am not sure that I have ever seen an overt attack which was not preceded by at least some trace of Gfluff.

The lowest intensity form of Gfluff is simply fluffing out the breast, belly, and abdominal feathers. This is usually quick, the feathers coming in again almost immediately, but usually quite extreme. Particularly conspicuous in the case of the ♂, whose whole yellow underside seems to swell, going particularly far out sideways.

At low intensities, this occurs without any raising of other feathers or any other sign of ritualization. Combined with an unritualized "pre-flight" or "pre-forward-movement" posture, with head & neck stretched slight forward, but not much lowered, to a variable extent.

Other elements are combined with this at higher intensities, and this combination may be slightly different in the two sexes.



Simple Gfluff
Low Intensity



High Intensity
Gfluff & extreme G.

Juana, May 30, 1958, III

(30)

As the intensity level increases in the ♂ his belly feathers are fluffed more and more; but his head & back are fluffed very little if at all. His head may be lowered a little.

Then, very frequently before attack, or when he is standing face to face with another bird which refuses to retreat, his head may be lowered even more and he assumes a very wide G. He is then more or less in the posture drawn on the preceding page. This is obviously very very high intensity, and it is possible that this extreme Gfluff & G pattern differs from the simpler G pattern in actual intensity alone (i.e. it may be equally aggressive), but it is also possible that the G is a sign that the attack & escape drives are more nearly equal than they are in the simple Gfluff without G (although attack may still be definitely preponderant).

I don't think that I have ever seen a ♂ in Gfluff with his lower body feathers raised to form 2 distinct lumps like the ♀ pattern I drew on Dec. 28, p. 12.

The ♀'s behave in much the same way as the apparent intensity increases, fluffing more & more and giving the G, but they seem to be far more prone to ruffle the back & head feathers much more. This is sometimes quite extreme, the back feathers being as greatly ruffled as in the drawing on Dec. 28, p. 12, and the whole head looking large & fluffy. They also tend to lower the head into the "forward" posture like the ♂.

(Now - of course - after writing the above - I have seen the ♂ go into an F Gfluff & G with the back feathers quite definitely ruffled - although still perhaps less so than in the most extreme F Gfluff's of ♀'s.)

Jauoaga, Mar. 30, 1958, IV.

(31)

The only other hostile display (i.e. really distinctly separate display) which these Pico Girdes are performing now is a CR more or less like the one described & pictured on Dec 28, p. 13. And this seems to be largely or completely confined to the ♂ - as a distinct pattern. He has been doing some CR's which are even more extreme than the one pictured on p. 13, with even more of the blue back of the head showing. These CR's have occurred during the general periods when he has been making numerous attacks and assuming F Gfluff's & G, etc., but they have not occurred in immediate association with any of the latter patterns. The ♂ has assumed these CR's in the intervals between the more obviously aggressive activities. He just stand or sits in an apparently unneutralized, usually more or less erect posture, and (often repeatedly) raises & lowers the crown feathers. The circumstances in which most of these CR's occur would certainly seem to confirm the hypothesis that they are less aggressive than any of the typical Gfluff patterns, but it should also be noted that they are not associated with overt escape either. (I have seen very few ambivalent performances, combinations of CR with Gfluff's - and the few I have seen were very brief and the Gfluff component was of the lowest intensity type. The 2 complexes would appear to be almost completely mutually exclusive in the present circumstances.)

None of the captive Pico Girdes has given any calls or notes during these hostile encounters. This is really quite surprising, and certainly one of the most distinctive characters of the species (and Euphoniae in general ???).

Savagra, I

(38)

April 1, 1958

Barro Colorado

The general hostility among the *Pico Gordo*s is continuing as before, but I think I may have to modify some of the remarks I made in my notes the day before yesterday.

I have now seen the ♂ assume an F Gfluff posture, + G, in which the upper back feathers were extremely ruffled — quite as much so as in any ♀ pattern I have ever seen. This seemed to be very high intensity indeed (although it may still have been relatively less aggressive than Gfluffs without ruffling of the back feathers — but I doubt it.) I still think, however, that such patterns are not typically accompanied by "real" or extreme CR.

The position of the head & neck during these Gfluffs seems to be largely dependent on the position of the opponent toward which such displays are directed. The "F" types are characteristic when the opponent is at more or less the same level as the displaying bird. The displaying bird may also, however, lift its head & bill if the opponent is far above, or lower them if the opponent is far below.

I have now seen the ♂ do extreme OCB (opening the bill very widely) during a Gfluff.

The long-continued nature of these hostilities would suggest that this is one of the most aggressive of the species I am studying. It certainly seems to show far more hostility than any of the other *Euphonia*s.

April 2, 1958
Barro Colorado

I have now seen the ♂ Pico Gordo go into the F Gloss pattern with the crown feathers just about as raised as they are in simple CR alone. (This is really much less conspicuous than simple CR, simply because the raising of the crown feathers is "dwarfed" by the raising of the upper back feathers which also occurs at the same time — the net effect of which is to provide a very broad dark frame for the yellow forehead patch.) I am still not sure, however, if this extreme CR is really very common with the Gloss. And I still think that the Gloss's with extreme ruffling of the upper back feathers (BR) and extreme CR may be somewhat less aggressive than the simple Gloss's without ruffles — although probably higher intensity on the whole.

There was an actual fight between the ♂ & a ♀ Pico Gordo which seemed to be accompanied by real HAC Notes !!! (Unfortunately, this took place behind a leaf, so I couldn't actually see what was going on, and can't say anything absolutely definite about the encounter.)

I have twice seen the ♂ face a ♀ and do apparently ritualized OCB at her. In F Gloss posture, with at least a trace of BR and CR. The OCB itself was quite extreme, but rather slow (probably slower than "comfort" OCB's). In neither case was this immediately followed by attack, so it may not be one of the most aggressive patterns. Probably at least fairly high intensity, however.

Tanagra, Apr. 2, 1958, II

(34)

The ♂ Pico Gordo did a lot of apparently ritualized but possibly significant BW in the relatively calm intervals between bursts of attacking & fluffs.

Tanagra, I

April 19, 1958
Barro Colorado

Nothing much new recently

Both species have again uttered more WhCN's as all CN's when hawks have flown by.

One of the ♀ Pico Gordos tends to fly to a high perch in the corner of the aviary, sitting by herself, looking out, and uttering single notes from time to time. Each note sounds very much like a single WhCN, but deeper in pitch, more melodic, less whistle-like, and almost syllabic. Comme ça:

— — — Not accompanied by any ritualized postures or movements. Looks almost as if she were trying to "call in" a mate !!

The ♂ Bui Bui seems to have quite given up singing!

Tanagra, I

April 23, 1958
Barro Colorado

An Accipiter hawk was around the aviary part of this afternoon, provoking all the Euphonia's to give lots of WhCN's. In the case of the ♂ Bui Bui, at least, I discovered

Jauaga, Apr 23, 1958, I

(35)

that there are definitely 2 distinct morphological types of Wh CN's. Both can occur as triplets, but one is much higher pitched more whistle-like, less flute-like than the other. The higher-pitched whistle-like call sounds higher intensity than the other (and preceded the more flute-like notes in at least one case).

Jauaga, I

June 30, 1958

Pedro Miguel Falcón

There are a lot of Euphoniae, both adult & young, flying about & feeding in more or less loosely organized flocks in the tops of Cecropia trees near here. Apparently both Pico Gordo and Bim Bim involved, (although I don't know if the Bim Bim and Pico Gordo were ever involved in the same flock at the same time). In any case, whatever Euphoniae they were very restless & noisy, uttering a lot of rather sharp "Tut" CN's and almost as many WhCN's. The whole flock behavior was quite reminiscent of the flocks of Plain-colored Tanager.

Jauaga, I

August 10, 1958

Ciro Campana

There were a number of Pico Gordo around here, in the woods and scrub about half way up the mountain. I didn't get much chance to observe them much, but I did notice the following.

A ♀ in the bushes, possibly disturbed by my presence,

Tauanga, Aug 10, 1955, II

(56)

gave RCN after RCN. No ritualized postures or movements.

An adult ♂, certainly disturbed by my presence, gave a whole lot of notes one right after another, many very very different from one another, all apparently introduced in a jumble without any sign of "rational" arrangement. Including MCN's of more or less the usual type, ordinary CN's, possibly some R- or Trill-like Notes, a sort of "galeharung" (gk) "Ka ka ka ka ka ka ka ka", and rather flute like "Wheoooo" and "Who-ooooop" Notes. I think that there was a slight tendency for each burst of gk to be followed by one or more of the "Wheoooo" or "Who-ooooop" Notes (which I shall call "Woo" given from an apparently unritualized rather horizontal posture, with head & throat feathers somewhat fluffed.



Tauanga, I

December 2, 1958

Barro Colorado

I have had just a pair of Rico-Gordas here for a long time. A ♀ (unbanded), and a first year ♂ (who probably hasn't been in full adult plumage for more than a month and is banded yellow left.) I haven't watched them at all until today. They have just been living happily in a medium-sized aviary by themselves. Then, a few days, I got a young ♂, in complete juvenal pl

Javaga, Dec. 2, 1958, I.

(37)

unagg, (banded yellow left) which I kept by itself for, rather, with a Summer Tanager which it quite ignored for several days.

The young yellow left ♂ sang and sang and sang while it was in the small cage. In quite unritualized semi-erect semi-diagonal postures. Presumably due to "thwarted mating drive." Certainly not hostile (it showed absolutely no hostility to the Summer Tanager, and whenever it became alarmed by human beings in the cage it always stopped singing immediately.) The song itself was more or less a sort of WS, very loud, and extremely variable. Very difficult to describe. Not unlike the song of the presumed adult ♂ Pico Gordo described above p. 36, but perhaps a little less peculiar. Without any glk. A variable jumble of trill-like notes (apparently single RCN's), plus a variety of apparently essentially single whistle-like and flute-like notes, plus what seemed to be some warbled flute-like notes all sort of run together. Some of the single or flute-like notes were probably identical with notes I have elsewhere called "ALCN's" (see p. 8 and ff.) and the — — note described on p. 34, and which should probably be called "WCN's" (see below). I think that the order of the various types of notes in this WS was not fixed in any definite way. Looked random (although presumably strictly correlated with variations in relative and actual strengths of different types of motivation).

Finally put the young ♂ in the aviary with the two adults this afternoon. Not a very vivid reaction. The adult ♀ was moderately aggressive for quite some time, while the adult ♂ became moderately aggressive every now and then, while the young introduced ♂

Jauzara, Dec. 2, 1958, II.

(38)

just showed moderate intensity simple alarm & escape reactions. The fact that the adult ♀ was more aggressive than the adult ♂ is interesting however, as it illustrates the importance of plumage colors & pattern. The ♀ was presumably most irritated because the juvenal plumage of the young ♂ is like that of a ♀, more or less.

The hostile reactions of the adults included attack patterns, Gfluff's and related display elements, and a variety of call notes.

When I first put the young bird in, one of the birds uttered two single RCN's, (I shall continue to call such single notes "RCN", and change the name of the multiple trill-like calls, like those of the Rufous-vented, to "MRCN"). I am fairly sure that these were uttered by the adult ♂, sitting in a quite unritualized posture.

The only other RCN's uttered during this encounter were given by the adult ♀, several times when she stood beside the newcomer in slight Gfluff, moving toward him but not actually attacking him.

These incidents might suggest that the RCN is either on the slightly aggressive side or produced when attack & escape are approximately in balance, but rather low-intensity on the whole. The ♀ did not utter RCN's when she went into extreme Gfluff (see below).

The commonest notes throughout this incident were a lot of loud single notes, which must be, I think, what I used to call "ALCN" and which I shall now call WCN. The sound of

Janaína, Dec. 2, 1958, III.

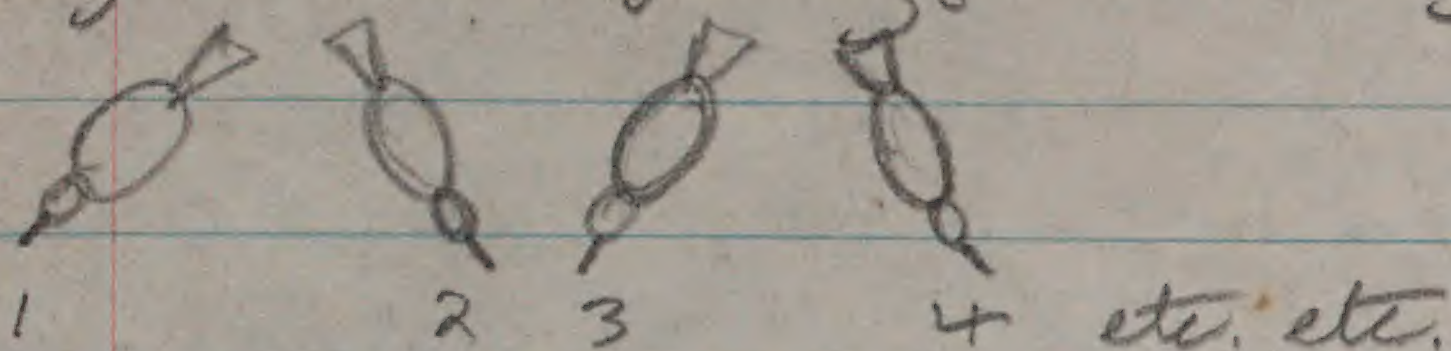
(39)

the WCN's varied considerably. Every intergrade from a rather (but not completely) whistle-like "Whist", through full like "Whoooo" or "Whoooooo", to nasal "Whaaaah", type notes — even in some cases nasal "Whaaaah" notes with a definite rasping quality. Always essentially single, but frequently repeated at rather short intervals. Bill opening & closing with each note, except for some of the "Whaaaah" Notes which were given with the bill absolutely closed.

Almost all these WCN's were combined with very low intensity to moderately high intensity Gfluffs. Given by both the adult ♂ and the adult ♀. Sometimes also combined with attack ut. movs. The longest & most rapid series of WCN's was a burst of the "Whaaaah" type given by the ♀ with bill closed. This might indicate that such notes are the highest intensity of all the WCN's (and their nasal and/or rasping quality might also suggest that they are the most aggressive — although they were not actually combined with overt attack — see below). In general, I think that these WCN's must be higher intensity than the RCN's, and probably more aggressive.

The physical form of the Gfluff patterns was much the same as I have seen before. Sometimes quite extreme, with BR and CR (and "double" swelling of breast & belly feathers in some cases, in the adult ♂ as well as the adult ♀). Sometimes combined with a low-forward position of the head, sometimes arched while the bird was sitting more or less upright in a semi-diagonal posture. I did notice one thing new, however. This was a form of "pooting" (Pnt). I think that every Gfluff by both the ♂ +

♀ this afternoon was accompanied by ♂. Quite simple. The body turned diagonally first one way, then the other. Come on:



No hopping or apparent leg movements of any sort. Tail, body, & head always kept in straight line, i.e. no looking from side to side, bending neck, as in Rufous-vented.

One thing about these Gfluff patterns cannot be stressed too strongly. Although lots of low to moderate intensity was accompanied by WCN's (and some ordinary CN's - see below), the really extreme Gfluff's, with real attack movements, were apparently always silent!! (Not even with G for that matter.)

I only heard one little burst of the call I have been terming "MCN" and "WHN" (which I shall call "MWCN" from now on.). This was a brief 2-note call by the adult ♂ at one time, when he didn't seem to be too excited. Perhaps in a trace of Gfluff, but making no attempt to attack or advance upon the new-comer.

All three birds uttered a lot of ordinary CN's throughout the afternoon. I think that these might best be described as very soft "Whits". Frequently uttered in little bursts or series - rather like the CN's and related notes of the Plain-colored and Golden-marked Tanagers, in fact. Some of the CN's of the adults were certainly combined with low Gfluff's, but this was presumably just ambivalent behavior of a sort. All three birds always gave CN's whenever they flew, and the CN of this species seems to be more a locomotor call rather than a truly hostile pattern.

Tanagra, Dec. 2, 1958, IV

(41)

The juvenile ♂ stopped singing immediately as soon as he was put into the aviary with the others.

Tanagra, I

December 9, 1958

Barro Colorado

I have had a pair of White-vented for some time now, but haven't been paying too much attention to them.

They do have ordinary CN's. A single CN might be transcribed as "Tut", like the CN's of related species. Essentially single notes and doublets, although often repeated in long series, to give the "twittering" effect described on Dec. 9 of last year, p. 10. This is the only CN-like or CN-type call these birds have uttered since I got them.

The ♂ sings constantly when he is separated from the ♀, and always shuts up when she rejoins him. (He apparently never tries to join her when he is singing.) This seemed to be a WS of the usual "Euphonia" type. Like that of other small species, it seemed to be rather formless, a moderately loud, rather pleasant, warble — rather fast and difficult to analyze into its component parts (if any). Not un-Goldfinch-like. I have only been able to distinguish 2 slightly differentiated parts aside from the main warble. Many warbling phrases are introduced by one or two more distinct, sharper, CN-like notes. And once I heard the ♂ give 2 quite clear RCN Notes in the middle of a warbling phrase. (This is the only time I have heard either bird give anything at all like an RCN.) The ♂ gives this WS from an apparently quite unutilized semi-erect, semi-diagonal sitting posture, with the lower body feathers just slightly fluffed.